# Daily GLOWBUGS

## Digest: V1 #107

### via AB4EL Web Digests @ SunSITE

**Purpose: building and operating vacuum tube-based QRP rigs**

AB4EL Ham Radio Homepage @ SunSITE

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%%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%%

**Subject: glowbugs V1 #107**
**glowbugs  Tuesday, September 9 1997  Volume 01 : Number 107**

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Date: Sun, 7 Sep 1997 22:16:13 -0700 (PDT)
**From: Ken Gordon <keng@uidaho.edu>**
**Subject: Re: RS transformers**

>  RS has a transformer rated at 25VAC C.T. and 3A.  That would work
>  out to 75VA for primary and secondary windings.  The primary should
>  handle about (75VA / 115VAC = .652A).  Right so far?
>
>  If I fed in 115VAC to the secondary, the primary should deliver

Am I understanding you correctly ? You want to put 115 VAC on the 25VAC
secondary winding ? If this is what you want to do, you will burn up the
transformer IF your household fuses hold. Look at the IMPEDANCE of the
windings: Roughly R (Z) = 25/3 =~ 8.33333 ohms, and 115/.652 = ~176 ohms,
then 115/8.333 =~13 amps, and lastly 115 * 13 =~1495 VA. Blooey!!!!!!

Ken W7EKB

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Date: Mon, 8 Sep 1997 09:13:41 -0400 (EDT)
**From: rdkeys@csemail.cropsci.ncsu.edu**
**Subject: Re: Keying..... be funky --- use primary keying!**

>
> de Bob
>
> Cathode keying, all the current
> Grid keying, a tiny bit of current
>

Good morning Bob and all.....nice to see you at Shelby!

To add a sticky wicket into the works..... why not try Primary Keying!

Works well, properly done, but improperly done.... whoa Nellie!

Also, I am a firm believer in B- keying (that is sort of a combination
of grid block and cathode keying all in one).

Primary and B- keying are..... ancient, .....to say the least.  But, they
can work very well and are simple to set up and use on OT circuits.  The
keying shaping is also relatively easy to do if you keep a box of odd
1 ufd caps and 1 henry chokes, or thereabouts, handy.  Relay keying is
recommended to keep your fingerpokins at reasonable groundednessssssss.

More later, when I get the nose off the grindstone.....

73/ZUT DE NA4G/Bob UP

---

Date: Mon, 8 Sep 1997 09:58:16 -0400 (EDT)
**From: rdkeys@csemail.cropsci.ncsu.edu**
**Subject: Workbench thoughts**

Although workbenches are as individualized as the operators, I have found

a few tidbits that work for me......

1. Make the workbench STURDY (obvious for boatanchors right?). IFF two or three Sumo wrestlers can stand on it, without it collapsing, it is probably sufficient. A formica top is nice if you have the guildern de realme, but heavy plywood is also good. Old bowling alley lanes are good, too, if you can find them. Standard kitchen counter top with the back lip works fine, too. Just make the supporting bench HEAVY.

2. The use of several 75 watt lamps in the round aluminum clipon reflectors (usually one at each bench end) plus an added shoplight dual fluorescent fixture allows one to choose the best lighting for a particular purpose or angle of incident lighting. If you are rich, you can put a set of flood fixtures up in the ceiling or use track lighting to advantage.

3. An outdoor carpet strip about 3 feet wide and a little less than the width of the bench will cushion rigs on end. An old pillow with a sturdy cover will help support odd upside down receivers. Also a set of various sized small boxes or tin cans will allow you to adjust the inverted gear angles to keep the tops of RF cans from getting dinged.

4. A strip of 2 x 4 along the back edge of the bench drilled with 1 inch or so holes allows tools to be held handy. It also allows screws a place to stop at rather than rolling down behind the bench (the old lost forever screws syndrome).

5. Mount a plug strip (switcheable on/off) along the back edge up higher than the tools, or on either end using small 6 socket strips. Sometimes an additional strip under the bench at the front edge is good for plugging in temporary tools without having cordage running all over the bench. ALWAYS use switched strips so EVERYTHING on the bench can be killed, electrically, without plugging/unplugging anything. A master kill switch is good so EVERYTHING can be killed at once. A master ground point is usually desireable, so everything can be clipleaded to ground for testing (especially on older 2-wire sets without a real ground in the cordage).

6. A small 3-1/2 inch wide (1 x 4 stock) shelf above the strip is useful for holding small things like tape rolls and solder rolls or other small boxes of things.

7. A large shelf (or pair of them) above the solder shelf is useful for holding test equipment or cabinets of small parts. MAKE THE SHELF HEAVY to support boatanchor test equipment, and a full 11 or 12 inches wide. If space permits, a second shelf above that is good for other test equipment or a set of Riders or such.

8. A set of small cups of plastic or tin or even bottle lids are useful for holding odd sets of screws during servicing. They can be put on the solder shelf and held there with double stick tape. Clear 35mm film cans are also quite effective here.

9. A flexible desk lamp with a ringlight and magnifying glass (typically a Flexo brand ringlight) is often useful, although a small high intensity light and a hand glass is sometimes usable. The Flexo lights are quite expensive at around 100 bucks or more, but nice if you find them in surplus.

10. The front edge of the bench should have a metal strip UNDER the counter lip so things can be clamped to the bench top and not ding the table wood underneath. The strip should NOT be grounded so that you won't form an inadvertent ground path through it.

11. Test leads and cordages need to be kept on a rack of hooks or somesuch that are within easy reach, but not so close as to congest the working radius on the bench. Make the rack of hooks with large radii so that cordages don't bend and break at the hanging point. Old thread spools or dowel rod about 1-1/2 inch in diameter are useful here.

These are the things I think about in my bench, and it works for me.
But, anyone's particular mileage may vary, and creative individuality is always a good approximation thereto.

73/ZUT DE NA4G/Bob UP

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Date: Mon, 08 Sep 1997 10:22:14 -0400
**From: Roy Morgan <morgan@speckle.ncsl.nist.gov>**
**Subject: Re: Workbench ideas**

At 10:30 AM 9/7/97 +0100, BOB DUCKWORTH wrote:
>Workbench ideas.
>
>Comfortable but not carpeted floor.
...  (good stuff snipped) ....
>The big decision is, do you want to bring the test gear to the work
>or the work to the test gear.

That depends on how much test gear you use.  For me, I have a lot of heavy
test gear: signal generator(s), scope, counter, meters... most of it
boatanchor type.  (Nobody my age should be lugging around a GR-1001A very
often, let alone a Tek 545!)

Sooo... my plans are to build TWO work stations: one for operating the ham
stuff, and one for fixing/building things.

Ah, me!
Soooo many projects,, sooo little time.


Keep em Glowing!
Roy, K1LKY since 1959

- -- Roy Morgan/Building 820, Room 562/Gaithersburg  MD 20899
(National Institute of Standards and Technology,  formerly NBS)
301-975-3254 Fax: 301-948-6213  morgan@speckle.ncsl.nist.gov --

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Date: Mon, 08 Sep 1997 10:27:00 -0400
**From: "George S. MacLauchlan" <geomac@tiac.net>**
**Subject: Re: RS transformers**

Shane wrote:

>    Hello All,
>
>    RS has a transformer rated at 25VAC C.T. and 3A.  That would work
>    out to 75VA for primary and secondary windings.  The primary should
>
>    handle about (75VA / 115VAC =3D .652A).  Right so far?
>
>    If I fed in 115VAC to the secondary, the primary should deliver
>    about 529VAC, according to the turns ratio.  Since it's center
>    -tapped, I could get 264VAC out by just using one side of the
>    secondary as my 115VAC primary.
>
>    Here it gets a little confusing.  Common sense tells me that, from
>    the size of the transformer, it should be good for about 60 or 70
>    mA output at around 250VDC, loaded.   However, if each winding is
>    good for 75VA and the wire gauge in the intended-for secondary
> winding
>    is good for 3A, then this winding used as the primary should be
> able to
>    handle 75VA / 115VAC =3D .653A or 653mA with no problem.  Likewise,
> the
>    intended-for primary winding has a rating of 653mA, so should be
> able
>    to handle this as a secondary at either 264VAC or 529VAC.  At 75VA
> /
>    264VAC =3D 284mA, this is more than my common sense guess of 60 or
> 70mA.
>
>    It would *seem* that this transformer would make a good little
> power
>    supply component for a small CW transmitter, when run in reverse.
>    Would it?  What would its maximum current output be in the cases
> above?
>
>    Regards,
>    Shane Wilcox

Hi Shane and all,
Let me start by figuring the load impedance.  This is the new secondary
voltage divided by
the desired secondary current.  R=3DE/I  or 529 volts divided by 142 mA,
this gives 3725 Ohms.
The reason for 142 mA is because 529 volts times 142 mA equals 75
Watts...

The second thing is the turns ratio from number of secondary turns to
number of primary turns,

the ratio is 4.6

The reflected impedance from the secondary to the primary is equal to
the impedance
of the secondary times (number of primary turns divided by the number of
secondary turns)
and this turns ratio is squared. [Note this is the inverse of the sec to
pri turns ratio]

So we end up with 3725 Ohms times (1 divided by 4.6) squared =3D Primary
impedance

(3725)x(1/4.6)=B2=3D176  ohms as the primary impedance.

I=3DE/R =3D 115/176 =3D 653 milliamps.....Primary current...*This would b=
e for
a lossless transformer.
If you figure 80% effeciency the secondary current would actually have
to be lower, as would
the secondary voltage.

This is explained in the ARRL Handbook.....

Sincerely, George K1IFV in NH

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Date: Mon, 8 Sep 1997 10:51:58 -0400 (EDT)
**From: rdkeys@csemail.cropsci.ncsu.edu**
**Subject: Kudos to the list!**

Well, our glowbugs list is now into the 110th day and beyond.....
It is still working, and hopefully, will continue for a long, long time.
Kudos to Conard in the hills of Tennessee, and Bob down in Atlanta for
keeping things afloat!

DE NA4G/Bob UP

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Date: Mon, 8 Sep 1997 08:45:02 -0700 (MST)
**From: Jeff Duntemann <jeffd@coriolis.com>**
**Subject: Re: RS transformers**

Shane--

>   If I fed in 115VAC to the secondary, the primary should deliver
>   about 529VAC, according to the turns ratio.  Since it's center
>   -tapped, I could get 264VAC out by just using one side of the
>   secondary as my 115VAC primary..

I tried this once, on a fairly gutsy transformer with a 36V secondary.
Within seconds the transformer started to smoke.  I would guess there's
insufficient AC ohms across that low-voltage secondary to keep the winding
current within what the transformer can handle.

- --73--

- --Jeff Duntemann KG7JF
  Scottsdale, Arizona

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Date: Mon, 8 Sep 1997 10:52:36 -0500
**From: bill@skeeter.frco.com (William Hawkins)**
**Subject: Re: RS transformers**

Well, the transformer will not survive having the 25 volt winding
connected to the line, but not because of impedance.  Transformer
turns ratio determines voltage and impedance ratios, but it is
core saturation that sets the limits.  Yes, the same thing that
won't let you use a 400 cycle transformer at its rated voltage on
60 cycle current.  A magnetic core has a maximum flux change that
it can do before allof the magnetic domains ae lined up and no
further change is possible.  When the flux stops changing, you have
a coil of wire with only its DC resistance for an 'impedance' and
not an inductor.  It is the DC resistance of the copper that will
either b low the fuse or burn up the winding.

The amount of flux change possible is proportional to the volume

(and weight) of the iron core.  Applied voltage causes the flux
to change, and inductance makes that take time to change.  So
there is a voltage times time product that is a property of the
way the transformer is built - the amount of iron and the amount
of copper (number of turns).  Since iron and copper cost money,
transformer designers use as little as possible.  That means
that there isn't enough margin in the design to increase the
voltage applied to a winding by a factor of 5 (25 to 125) and
not run into saturation.  Maybe 1.2 is more like it.

Now, you can increase the voltage if you decrease the time.  That
would mean using about 400 cycle current to run a 25V 60 Hz
winding at 125 V.  But that would be more expensive than buying
the right transformer (unless you have a 400 cycle generator
purring away in the corner of your shop).

Regards,
Bill Hawkins

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Date: Mon, 08 Sep 1997 16:28:58 EDT
**From: km1h@juno.com (km1h @ juno.com)**
**Subject: 12 Oscillator ckts in 73**

The 9/97 issue of 73 contains what may be a first.

There are 12 oscillator circuits all presented in one place and on one
page. Granted this is not a how to build article and uses SS devices for
the active element but I am impressed.
There is also a brief story behind each circuit.

The creative Glowbugger can Xerox the schematics and tape them on the
wall. The next time a strange circuit appears or is reverse engineered
(sketched out from some BA with no schematic) the "light" may come on.

By no means is the list complete but that is another subject.

73....Carl   KM1H

---

Date: Mon, 8 Sep 1997 14:51:04 -0700 (MST)
**From: Jeff Duntemann <jeffd@coriolis.com>**
**Subject: Re: 12 Oscillator ckts in 73**

At 04:28 PM 9/8/97 EDT, km1h @ juno.com wrote:
>The 9/97 issue of 73 contains what may be a first.
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>There are 12 oscillator circuits all presented in one place and on one
>page. Granted this is not a how to build article and uses SS devices for
>the active element but I am impressed.
>There is also a brief story behind each circuit..

I'll have to look tonight, but unless I misrecall, Wayne Green published a
longish article in 73 in the mid-60s, by Jim Fisk no less (he who later
founded HAM RADIO MAGAZINE) about all different kinds of crystal
oscillators, and the examples were all tubes!

I'll take a look and cite here tomorrow if I find it.

I rarely bother with 73 anymore, but I guess every so often Wayne happens
on something.  I wonder if anyone remembers some of the articles Bill
Hoisington used to write for 73 in the late 60's early 70's on VHF
homebrewing.

- --73--

- --Jeff Duntemann KG7JF
  Scottsdale, Arizona

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Date: Mon, 8 Sep 1997 18:40:30 -0500 (CDT)
**From: Bob Roehrig <broehrig@admin.aurora.edu>**
**Subject: Re: 12 Oscillator ckts in 73**

There was also an excellent article in the March 1976 issue of HAM RADIO
called "A Survey of Crystal Oscillators" which is 12 pages worth of many
circuits and is a great reference.

E-mail broehrig@admin.aurora.edu  73 de Bob, K9EUI
CIS: Data / Telecom  Aurora University, Aurora, IL
630-844-4898  Fax 630-844-5530

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Date: Mon, 08 Sep 1997 20:15:19 EDT
**From: km1h@juno.com (km1h @ juno.com)**
**Subject: Re: 12 Oscillator ckts in 73**

On Mon, 8 Sep 1997 14:51:04 -0700 (MST) Jeff Duntemann
<jeffd@coriolis.com> writes:

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>longish article in 73 in the mid-60s, by Jim Fisk no less (he who
>later
>founded HAM RADIO MAGAZINE) about all different kinds of crystal
>oscillators, and the examples were all tubes!

Jim was always publishing good stuff, in both magazines.
I can still recall when I was sitting in my office at National Radio
(1965-66??) when the Sales Mgr came in with Skip Tenney and Jim Fisk.
They were there looking for advertising for their new magazine  HRM.
Still have those issues but buried in boxes in the attic....still havent
got around to unpacking from the 1989 move here!

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>I rarely bother with 73 anymore, but I guess every so often Wayne
>happens
>on something.  I wonder if anyone remembers some of the articles Bill
>Hoisington used to write for 73 in the late 60's early 70's on VHF
>homebrewing.

That is one guy I will always remember....but mostly with a shudder. Sort
of a cross between Rube Goldberg and Frank Jones (W6AJF); but at least
Frank's stuff had a chance of working!  Bill seemed to have very little
respect for tube specs, longevity or spectral purity.
A good author back then was Jim Kyle, K5JKX. He wrote lots of simple but
competent articles that most anyone could follow and make work.

Sam Harris, W1FZJ, once told me that any engineer can design a circuit,
given enough time and enough variable adjustments. Only a "good" engineer
could come up with a circuit that could be repeatable and manufacturable.

HRM stressed the buildable theme and really carried on the old CQ
Magazine tradition from the 40's and 50's.  Jim Fisk was the one that
made it all work and after his death HRM went downhill.

73...Carl  KM1H

>--73--
>
>--Jeff Duntemann KG7JF
>  Scottsdale, Arizona
>
>

---

Date: Mon, 8 Sep 1997 18:50:53 -0600 (MDT)
**From: Shane <toyboat@freenet.edmonton.ab.ca>**
**Subject: Re: RS transformers**

On Sun, 7 Sep 1997, Ken Gordon wrote:

> >    RS has a transformer rated at 25VAC C.T. and 3A.  That would work
> >    out to 75VA for primary and secondary windings.  The primary should
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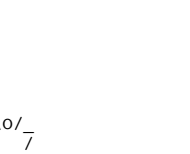
> Am I understanding you correctly ? You want to put 115 VAC on the 25VAC
> secondary winding ? If this is what you want to do, you will burn up the
> transformer IF your household fuses hold. Look at the IMPEDANCE of the
> windings: Roughly R (Z) = 25/3 =~ 8.33333 ohms, and 115/.652 = ~176 ohms,

> then 115/8.333 =~13 amps, and lastly 115 * 13 =~1495 VA. Blooey!!!!!!

  Ah well.  I knew there was something basic that I was missing.
  It was a nice idea while it lasted....

> Ken W7EKB



Shane <toyboat@freenet.edmonton.ab.ca>

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Date: Mon, 08 Sep 1997 22:27:50 +0100
**From: BOB DUCKWORTH <bob@atl.org>**
**Subject: Re: RS transformers**

O.K. so let's say Shane buys 6 of these transformers and
puts the 25V sides in series and the secondaries in series paying
attention to phase.
Now he's got roughly 6 x 90V or 540V at 550ma available.
Run a full wave and big caps and he's got about 700V at
800ma for a 50% duty cycle service.

Hey, I should take my 2 x 2200V microwave oven transformers
and series the secondaries and parallel primaries and get
5KV or so at half an amp for the 4-1000 :-)

- -bob
wb4mnf

Shane wrote:
>
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>
> > Ken W7EKB

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Date: Mon, 8 Sep 1997 21:56:36 -0400
**From: "Brian Carling" <bry@mnsinc.com>**
**Subject: CW Crystals**

To N0ACS:  John, please drop me an e-mail if you are reading this.
Been trying to get in touch w/you. I know you're busy but if there is
a break in the action, please contact me via e-mail at:

bry@mnsinc.com

Thanks - Brian Carling, AF4K


**************************************************
*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA  *
**  E-mail to:  bry@mnsinc.com                    *
*** See the interesting ham radio resources at:    *
**  http://www.mnsinc.com/bry/                    *
**************************************************
AM International #1024, TENTEN #13582. GRID FM19
Rigs: Valiant, DX-60/HG-10, Eldico TR-75, Millen 90810
FT-840, TM-261, Ameco TX-62, Gonset Communicator III
HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS


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Date: Mon, 8 Sep 1997 22:02:52 -0400
**From: "Brian Carling" <bry@mnsinc.com>**
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On  8 Sep 97 at 14:51, Jeff Duntemann wrote:

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> on something.  I wonder if anyone remembers some of the articles Bill
> Hoisington used to write for 73 in the late 60's early 70's on VHF
> homebrewing.
>

Jeff:   DON Hoisington did some articles on super-modulation
techniques (a.k.a. DSB reduced carrier) but it was published in CQ
magazine and I believe it was 1958.

I once visited his AMAZING shack in Florence, Alabama - His call is
either W4CJL or W4CJY or something like that.

He is still occasionally active on AM and has his basement full of
homebrew AM rigs using handy things like 833 and 4-1000A tubes
built on open frame wooden chassises! He is QUITE a character let me
tell you!


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AM International #1024, TENTEN #13582. GRID FM19
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HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS


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Date: Mon, 8 Sep 1997 22:16:20 -0400
**From: "Brian Carling" <bry@mnsinc.com>**
**Subject: Re: RS transformers**

On  8 Sep 97 at 10:27, George S. MacLauchlan wrote:

> Shane wrote:
>
> >    Hello All,
> >
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> >    the size of the transformer, it should be good for about 60 or 70
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> >    good for 75VA and the wire gauge in the intended-for secondary
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> > able to
> >    handle 75VA / 115VAC =3D .653A or 653mA with no problem.  Likewise,
> > the
> >    intended-for primary winding has a rating of 653mA, so should be
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> >    Regards,
> >    Shane Wilcox
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> Hi Shane and all,
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> number of primary turns,
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> the impedance
> of the secondary times (number of primary turns divided by the number of
> secondary turns)
> and this turns ratio is squared. [Note this is the inverse of the sec to
> pri turns ratio]
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> So we end up with 3725 Ohms times (1 divided by 4.6) squared =3D Primary
> impedance
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> to be lower, as would
> the secondary voltage.
>
> This is explained in the ARRL Handbook.....
>
> Sincerely, George K1IFV in NH

My guess is that if you fed 120V AC to the secondary of such a 24V
transformer, you would blow a fuse or fry the winding in short order!

There are better ways to get 520V AC!

Hamfests and old TVs come to mind immediately!

**********************************************
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**  E-mail to:  bry@mnsinc.com                     *
*** See the interesting ham radio resources at:    *
**  http://www.mnsinc.com/bry/                     *
**********************************************
AM International #1024, TENTEN #13582. GRID FM19
Rigs: Valiant, DX-60/HG-10, Eldico TR-75, Millen 90810
FT-840, TM-261, Ameco TX-62, Gonset Communicator III
HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS

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Date: Tue, 09 Sep 1997 02:38:29 GMT
**From: wrt@eskimo.com (Bill Turner)**
**Subject: Re: RS transformers**

On Mon, 08 Sep 1997 22:27:50 +0100, BOB DUCKWORTH <bob@atl.org> wrote:

>O.K. so let's say Shane buys 6 of these transformers and
>puts the 25V sides in series and the secondaries in series paying
>attention to phase.
>Now he's got roughly 6 x 90V or 540V at 550ma available.
>Run a full wave and big caps and he's got about 700V at
>800ma for a 50% duty cycle service.
>
>Hey, I should take my 2 x 2200V microwave oven transformers
>and series the secondaries and parallel primaries and get
>5KV or so at half an amp for the 4-1000 :-)
>

The only fly in the ointment is the insulation resistance between primary and secondary. The original design required that they withstand only about 150 vrms, and you're going to ask them to handle five or six times that much. Maybe they'll take it, maybe they won't. Without knowing the design specs, you're taking a chance. It might be fun to try 'em out, but it's lousy engineering.

73, Bill W7TI

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Date: Mon, 8 Sep 1997 23:15:54 -0400
**From: benb27@juno.com (Ben C Bradley)**
**Subject: Re: RS transformers**

On Mon, 08 Sep 1997 22:27:50 +0100 BOB DUCKWORTH <bob@atl.org> writes:
>O.K. so let's say Shane buys 6 of these transformers and
>puts the 25V sides in series and the secondaries in series paying
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>
>Hey, I should take my 2 x 2200V microwave oven transformers
>and series the secondaries and parallel primaries and get
>5KV or so at half an amp for the 4-1000 :-)
>
>-bob
>wb4mnf

Actually there is more than one possible problem with operating transformers in other than intended ways, which could lead to 'breakdown'. As explained in another post, operating a winding at substantially higher voltage and/or lower frequency than rated can saturate the core, turning the windings into low-value resistors for portions of the AC wave, causing excessive heat at the least.

There's also the issue of how much insulation is used for the windings, which determines the ratings between different windings and between each winding and the core/frame. For the 'high side' of the six transformers in the example above, the 540vrms output will have about 750v peak, which could be near or above the winding-to-frame rating of a primary winding which the designer expected to never have more than 200 volts on it.

It's not that I never would (or never have) operate a transformer in a way other than it's designed for, but one needs to keep ALL the ratings in mind.

Ben Bradley  benb27@juno.com

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Date: Mon, 8 Sep 1997 23:57:06 -0500 (CDT)
**From: gekko95@ix.netcom.com (Dave)**
**Subject: What a terrible thing...**

Hello all,

I have the sad news to relate, my storage unit went up in
flames on Saturday night, and ALL is gone. 20 years of collecting
RF and electronic parts, tools, etc. etc. gone in smoke, all due
to a lousy illegal weapons stash that went kablooey. Now it's all
gone. My kids toys, family photo albums, 3 home built robots (with
moving arms, hands and mobililty platforms), furniture, etc. ALL
gone. And just 3 weeks until we closed on the 'dream house' with
the 800 square foot room for just my stuff!

Sorry to unload on the group, but I'm major bummed here. I've spent
so many years accumulating this stuff for the ultimate glowbug/
boatanchor/homebrew shack and now it's all a pile of black goo, just
three lousy weeks before closing. And those damned realtors that
said 'get this clutter and electronic crap out of the house' that resulted
in the renting of the storage units last year in the first place.

Dammit, I'm mad. The settlement may make some ammends, but SOOOO much
was lost. I'm sick to my stomach, and brandy just isn't helping. Thank
God that my ham gear was mostly at home. But forget the massive darkroom,
robot lab, photo gear, and BA spare parts (CK-series tubes, tubes from the
1930's, old radios, RF parts, robot parts, antique cameras, etc. etc.)

A very somber night. I'm going to bed now. I hope I didn't go against
the charter. I figgered you guys are friends, and I'm feeling pretty down
right now over this and I wanted some friends to know.

73's and thank God for what you have.

Dave WB7AWK
Tacoma, WA

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Date: Tue, 09 Sep 1997 16:19:47 +1000
**From: Murray Kelly <mkelly@powerup.com.au>**
**Subject: Re: 12 Oscillator ckts in 73**

Jeff Duntemann wrote:
>
> I'll have to look tonight, but unless I misrecall, Wayne Green published a
> longish article in 73 in the mid-60s, by Jim Fisk no less (he who later
> founded HAM RADIO MAGAZINE) about all different kinds of crystal
> oscillators, and the examples were all tubes!

Jim Fisk also had several in HR and the compendium where he described
his successes with the Seiler circuit (and FETs). This is what got me
started on VFOs.

>I wonder if anyone remembers some of the articles Bill
> Hoisington used to write for 73 in the late 60's early 70's on VHF
> homebrewing.
>
Yes! - I have several of them right here and they still make inspiring
reading. The encouragement to just 'try' was just amazing. So, who
cares if you 'smoke' something? You've learned. K1CLL as I recall.


**********
*  Murray Kelly vk4aok  mkelly@powerup.com.au  *
*  29 Molonga Ter. / Graceville/ QLD. 4075/ Australia  *
*  ph/fax Intl+ 61 7 3379 3307  *
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End of glowbugs V1 #107
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Created by **Steve Modena, AB4EL**
Comments and suggestions to **modena@SunSITE.unc.edu**